REMARKS

The present response is intended to be fully responsive to all points of objection and/or rejection raised by the Examiner and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application is respectfully requested.

Applicants assert that the present invention is new, non-obvious and useful. Prompt consideration and allowance of the claims is respectfully requested.

Status of Claims

Claims 1 through 19 are pending in the application. Claims 7 through 9 and 13 have been objected to as depending from rejected independent claims. Claims 1 through 6, 10 through 12 and 14 through 19 have been rejected.

Claims 18 and 19 have been canceled without prejudice or disclaimer. In making this cancellation without prejudice, Applicants reserve all rights in these claims to file divisional and/or continuation patent applications.

Allowable Subject Matter

In the Office Action, the Examiner stated that claims 7 through 9 and 13 would be allowable if rewritten in independent form.

CLAIM REJECTIONS

35 U.S.C. § 102 Rejections

In the Office Action, the Examiner rejected independent claims 1, 15, 18 and 19 under 35 U.S.C. § 102(b), as allegedly being anticipated by U.S. Pat. No. 5,608,679 to Mi et al. (the '679 patent).

Applicants have voluntarily canceled claims 18 and 19. Therefore, the 102 rejection with respect to claims 18 and 19 is now moot.

Regarding independent claims 1 and 15, Applicants respectfully traverse the 102 rejection in view of the fact that the examiner has failed to establish that the cited reference anticipates claims 1 and 15.

As is well established patent law, in order to successfully assert a prima facie case of anticipation, the Examiner must provide a single prior art document that includes every element and limitation of the claim or claims being rejected. However, regarding claims 1 and 15, Applicants respectfully disagree with the Examiner's statement that all the limitations of these claims are either taught or suggested in '679 patent.

More specifically, the '679 patent teaches:

> "A method for storing a charge on memory devices which includes the steps of **providing a first charging pulse to a memory device** to charge the **device** to a **first level less** than a final level; testing the value of the charge to determine whether the charge is greater than the first level; **if the value of the charge is less than the first level**, providing a second set of charging pulses to the memory device, each of the pulses of the **second set of pulses having a duration which is a fraction of the duration of the first pulse** and a value sufficient to charge the device to the first level; testing the value of the charge to **determine whether the charge is greater than the first level after each pulse of the second set of pulses**; and once the charge has tested greater than the first level, **providing a third set of charging pulses** to terminals of the **memory device**, each of the pulses of the **third set of pulses having a duration which is a fraction of the duration of the pulses of the second set of pulses** and a value such that the charge furnished by each pulse is approximately equal to an allowable variation of the charge from the final value. "('679 patent abstract).

Independent claims 1 and 15 in the present application recite:

1. A multi-phase method of programming an array of non-volatile memory ("NVM") cells, said method comprising:

Applying to a first set of NVM cells first phase programming pulses; and

upon one or more NVM cells of the **first set of cells reaching or exceeding a first intermediate** threshold voltage level, applying to a terminal of one or more cells in the first set of cells **second phase programming pulses adapted to induce relatively greater threshold voltage changes in cells having less stored charge than in cells having relatively more stored charge**.

15. A System for programming an array of non-volatile memory ("NVM") cells, said system comprising:

a controller adapted to cause a charge circuit to produce **first phase programming pulses** and to **determine when one or more NVM cells of a first set of cells receiving the first phase programming pulses reaches or exceeds a first intermediate voltage**, and to then cause said charge pump circuit to **apply to a terminal of the one or more cells in the first set second phase programming pulses adapted to induce relatively greater threshold voltage changes in cells having less stored charge than in cells having relatively more stored charge**.

Unlike the claimed limitations of claims 1 and 15, the '679 patent does not teach or suggest "applying to a first set of NVM cells first phase programming pulses" and the applying a second phase of pulses "upon one or more NVM cells of the first set of cells reaching or exceeding a first intermediate." Quite to the contrary to what is claimed, the '679 patent teaches "providing a first charging pulse to a memory device" and providing "providing a second set of charging pulses to the memory device" if the device is below a first threshold level.

The '679 patent teaches a programming technique on a cell by cell level. Whereas, the claimed invention relates to the concurrent programming of a set of NVM cells. Not only are the specifics of the programming steps very different between what is taught in the reference and what is claimed (i.e. reference starts with a single pulse on a single device and only switches to second set of pulses if the device did not reach a specific charging level and a third set of pulse if it has), the focus of the '679 patent is on charging of a single cell, while claims 1 and 15 recite a method and system for programming sets of cells.

Furthermore, the teachings of the '679 patent conflict with what is claimed in claims 1 and 15. According to claims 1 and 15, an NVM cell within a set of cells may begin receiving second phase pulses (i.e. what the Examiner equates to third set of charging pulses in the '679 patent) simply by virtue of another cell in the set having reached a threshold level. This would be impossible according to the teachings of the '679 patent, which teachings require each individual cell to reach an intermediate threshold level before that specific cell begins receiving a third set of programming pulses.

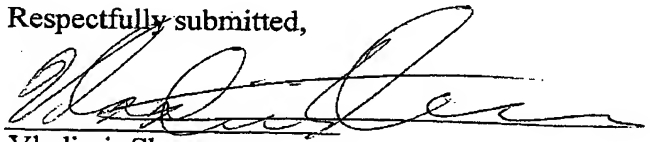
Accordingly, Applicants respectfully assert that independent claims 1 and 15 are allowable. Claims 2 through 14, 16 and 17 depend from, directly or indirectly, claims 1 and 15 and therefore include all the limitations of those claims. Therefore, Applicants respectfully assert that claims 2 through 14, 16 and 17are likewise allowable. Accordingly, Applicants respectfully request that the Examiner withdraw the rejections to independent claims 1 and 15, and to claims 2 through 14, 16 and 17, dependent thereon.

In view of the foregoing remarks, the pending claims are deemed to be allowable. Their favorable reconsideration and allowance is respectfully requested.

Should the Examiner have any question or comment as to the form, content or entry of this Response, the Examiner is requested to contact the undersigned at the telephone number below. Similarly, if there are any further issues yet to be resolved to advance the prosecution of this application to issue, the Examiner is requested to telephone the undersigned counsel.

Please charge any fees associated with this paper to deposit account No. 50-3400.

Respectfully submitted,



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